RF Exposure Report

Report No.:	SA180305C20
FCC ID:	ZOQVT-410
Test Model:	VT-410
Received Date:	Mar. 05, 2018
Date of Evaluation:	Apr. 24, 2018
Issued Date:	May 04, 2018
Applicant:	Verizon Connect.
Address:	2002 Summit Blvd, Suite 1800
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
Test Location:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City 33383, Taiwan (R.O.C)
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
SA180305C20	Original Release	May 04, 2018

1 Certificate of Conformity

Product:	OBD2 LTE/3G/GPS/WIFI/BT tracker
Brand:	Verizon Telematics Inc.
Test Model:	VT-410
Sample Status:	Production Unit
Applicant:	Verizon Connect.
Date of Evaluation:	Apr. 24, 2018
Standards:	FCC Part 2 (Section 2.1091) KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Gina Liu , **Date:** May 04, 2018

Gina Liu / Specialist

Approved by : , **Date:** May 04, 2018

Dylan Chiou / Project Engineer

2 RF Exposure

2.1 Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	…	…	f/1500	30
1500-100,000	…	…	1.0	30

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Antenna Type	Frequency Band (MHz)	Antenna Gain (dBi)
Metal	WCDMA II 1852.4-1907.6	2.49
	WCDMA V 826.4-846.6	1.1
	LTE 2 1850.7-1909.3	2.49
	LTE 4 1710.7-1754.3	1.1
	LTE 5 824.7-846.5	1.1
	LTE 12 699.7-715.3	1.3
	LTE 13 779.5-784.5	2.2
	LTE 17 706.5-713.5	1.3
	2412-2462	0.15
	5180-5240	4.26
	5745-5825	4.26
	Bluetooth 2402-2480	0.15

2.5 Calculation Result Of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WCDMA II 1852.4-1907.6	25.7	2.49	20	0.131	1
WCDMA V 826.4-846.6	25.7	1.1	20	0.095	1
LTE 2 1850.7-1909.3	25.7	2.49	20	0.131	1
LTE 4 1710.7-1754.3	25.7	1.1	20	0.095	1
LTE 5 824.7-846.5	25.7	1.1	20	0.095	1
LTE 12 699.7-715.3	25.7	1.3	20	0.100	1
LTE 13 779.5-784.5	25.7	2.2	20	0.123	1
LTE 17 706.5-713.5	25.7	1.3	20	0.100	1
2412-2462	17.0	0.15	20	0.010	1
5180-5240	14.0	4.26	20	0.013	1
5745-5825	14.0	4.26	20	0.013	1
Bluetooth 2402-2480	4.0	0.15	20	0.001	1

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WWAN + WLAN = 0.131 / 1 + 0.013 / 1 = 0.144

Therefore the maximum calculations of above situations are less than the “1” limit.

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